

REMARKS

The claims have been amended to more clearly describe the invention as disclosed in the written description. In particular, claims 1, 11 and 18 have been amended for clarity.

Prior to dealing with the rejections in the Office Action, Applicant notes that the Examiner has made the following observation:

"In the following analysis the examiner has grouped the following claims together, i.e., common subject matter/analysis:

Group A: Claims 1-3, 5, 11, 12, 14 and 18; two inform. Layers with an offset capability.

Group B: Claims 4, 6-8, 13, 15-17, 19, 25 and 26: two inform. Layers with no offset capability and a desired laser beam diameter."

Applicant believes that the Examiner's observation is partly incorrect, i.e., the Group A claims do not relate to information layers with an offset capability, while the Group B claims do relate to information layers with an offset capability and a desired laser beam diameter.

- (1) The Examiner has rejected claims 1, 11 and 18 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,839,753 to Ide et al. in view of U.S. Patent 5,428,597 to Satoh et al. and U.S. Patent 6,115,340 to Van Den Enden et al.

- (2) The Examiner has further rejected claims 2 and 12 under 35 U.S.C. 103(a) as being unpatentable over Ide et al. in view of Satoh et al. and Van Den Enden et al., and further in view of International Patent Application No. WO 00/16320 to Nishiuchi et al.
- (3) In addition, the Examiner has rejected claim 3 under 35 U.S.C. 103(a) as being unpatentable over Ide et al. in view of Satoh et al. and Van Den Enden et al., and further in view of Oguro et al.
- (4) Furthermore, the Examiner has rejected claim 5 under 35 U.S.C. 103(a) as being unpatentable over Ide et al. in view of Satoh et al. and Van Den Enden et al., and further in view of U.S. Patent 5,589,995 to Saito et al.
- (5) Moreover, the Examiner has rejected claims 1-3, 11, 12 and 18 under 35 U.S.C. 103(a) as being unpatentable over Ide et al. in view of Satoh et al., and further in view of Ishihara.
- (6) Finally, the Examiner has rejected claim 5 under 35 U.S.C. 103(a) as being unpatentable over Ide et al. in view of Satoh et al. and Ishihara, and further in view of U.S. Patent 5,703,867 to Miyauchi et al.

Applicant acknowledges that the Examiner has allowed claims 4, 6-8, 13, 15-17, 19, 25 and 26.

(1) The Ide et al. patent discloses an information recording disk having a base plate and information recording layers provided on surfaces of the base plate and used to write or read information thereon (col. 1, lines 5-9). As indicated at col. 1, lines 38-43, the information layers are provided on opposite sides of the base plate and are individually accessed by separate magnetic heads. As noted at col. 2, line 54 to col. 3, line 30, information written on an information layer includes a first gap G1 provided with "4E" written thereon at 16 byte unit, a second gap G2 called a "write space gap" for signal writing on a data field DF, a third gap G3 called an "inner-record gap" having a predetermined length, and a fourth gap G4 having a length which varies with the velocity of the DD (direct drive) motor.

The Satoh et al. patent discloses a multi-layered optical disk with track and layer identification which is scanned by a single scanning device. It should be noted that there is no disclosure in Satoh et al. of how information is recorded in track on a layer and whether there is a first guard field at the beginning of a data block and a second guard field at the end of the data block.

The Van Den Enden et al. patent discloses modifying the recording process to extend the life of a rewritable information carrier in which an information block includes a run-in area 63 at the beginning of the information block and a guard area 67 at the

end of the information block. As described at col. 8, line 50 to col. 9, line 5, and shown in Fig. 4 therein, information blocks may be written in the track at nominal initial positions, and at positions shifted from these nominal initial positions. Fig. 5 shows a method for randomly scrambling the start positions of the information blocks relative to the nominal initial positions. Fig. 6 shows the layout of a first information block 61 and a second information block 62 in which the pattern of the information in the information block is rotated.

The subject invention concerns how the transmissivity of an upper information layer may affect the reading of the lower information layer. In particular, as described in the Substitute Specification on page 5, paragraph [0007], and shown in Fig. 6, prior art multi-layer record carriers included a recording unit block beginning with a preamble and ending with a postamble. A first guard field then precedes the preamble, and a second guard field follows the postamble. A gap is purposefully positioned between the second guard field of one recording unit block and the first guard field of an ensuing recording unit block. As now described on page 5, line 23 to page 6, line 12 (paragraph [0009], the transmissivity of the upper layer differs in written areas (recording unit block) and in unwritten areas (gaps).

The subject invention seeks to reduce this difference in transmissivity by causing the first and second guard portions of

succeeding data blocks to overlay one another thereby eliminating the gap (page 21, line 15 to page 22, line 14 (paragraphs [0048]-[0049])). In claim 1, the limitation "said first and second guard fields have lengths such that an end position of said second guard field of a preceding data block in a track is located within an area of said first guard field of a succeeding data block in said track" is prefaced by the limitation "in at least an upper information layer of said at least two substantially parallel information layers," and therefore relates to succeeding data blocks in a track in the same information layer, and that the end of a second guard field at the end of one data block extends into the first guard field at the beginning of a succeeding data block, thereby eliminating the gap between data blocks.

In the rejection, the Examiner first indicates "It would have been obvious to modify the base system of Ide et al and modify such with the teaching from Satoh et al, motivation is to provide for multi-layered record media for their inherent ability of increasing the amount of data on a single record."

Applicant submits that the Examiner is mistaken. In particular, Ide et al. concerns a magnetic disk in which an information layer is scanned by a magnetic head. In order to enable multiple layers, opposite sides of a base plate are used with respective magnetic heads. Satoh et al. concerns an optical multiple layer recording medium in which the information layers are

scanned by a laser beam. It is unknown how Ide et al. could be modified by the teachings of Satoh et al. to provide Ide et al. with multiple layers since they are completely different types of systems.

The Examiner then states "With respect to the ultimate paragraph of claim 1, Can Den Enden et al teach in this environment, the ability of having a "run in area" (which can be relied upon as the first guard field) and a second guard area 67 and further that such areas can overlap - note the discussion with respect to figures 4 and 5."

Applicant submits that the Examiner is mistaken. While Van Den Enden et al. shows that the gaps between the information blocks in a track may vary (see Fig. 4), there is no disclosure that a portion of an information block (e.g., the second guard area 67) should overlay a portion of an ensuing information block (e.g., the run in area 63), i.e., the lengths of the first and second guard fields in an information block are such that "an end position of said second guard field of a preceding data block in a track is located within an area of said first guard field of a succeeding data block in said track".

Applicant notes that Van Den Enden et al. states "After several recordings, the spacing will partly contain old information as is shown at the start of the last block 47" (col. 8, lines 62-64). However, there is no disclosure or suggestion that this old

information is recoverable, or that "an end position of said second guard field of a preceding data block in a track is located within an area of said first guard field of a succeeding data block in said track".

(2) The Nishiuchi et al. reference discloses an optical information recording medium, method of manufacture thereof, and method of recording and reproduction, in which a plurality of information layers (2, 3) each have a sector structure in which a data area (8, 12) is divided in the circumferential direction by a sector address (9, 13). The positions of the sector addresses (9, 13) of the respective information layers (2, 3) coincide in the circumferential direction.

Claim 2 includes the limitation "wherein the lengths of said first guard field and of said second guard field are selected such that those parts of said first guard field and of said second guard field which do not overlap each other have a predetermined minimum length."

The Examiner now indicates that this limitation is disclosed in Nishiuchi et al. and alludes to the overlap discussed in paragraph [0061] of the English translation of Nishiuchi et al. (i.e., EP1128368).

Applicant submits that the Examiner is mistaken. In particular, paragraph [0061] states:

"Thus, it is preferable that the amount of dislocation between the two information layers, which has no effect on the rage of the data signals 32, is not more than the sum of the length of the gap area 33 and that of the guard data area 35, or is not more than the sum of the length of the gap area 34 and that of the guard data area 36."

It should be apparent from the above that PCT Nishiuchi et al. is referring to the amount of offset between two information layers. However, the noted limitation of claim 2 regards the positioning of the end of a second guard area of a data block in a track and the beginning of a first guard area of succeeding data block in said track, in which both data blocks occur in the same information layer. It appears that the Examiner is focusing on the environment of the invention, i.e., a multi-layer record carrier, and is overlooking the limitations of the claim element, i.e., "in at least an upper information layer of said at least two substantially parallel information layers".

Applicant submits that this feature of the invention is neither shown nor suggested by Nishiuchi et al.

(3) Applicant was not able to locate a citation for Oguro et al. in the file history of the subject application. Of the cited references, U.S. Patent 6,344,939 to Oguro discloses digital audio channels with multilingual indication. However, there is no disclosure of a preamble pattern and a postamble pattern as indicated by the Examiner in reference to Fig. 4. In fact, Fig. 4



of Oguro shows a Table "indicating possible usage of the channels of Fig. 3" (showing a conventional two channel recording format).

A search of the USPTO patent database uncovered U.S. Patent 5,724,474 to Oguro et al. which discloses a digital recording and reproducing apparatus and index recording method, in which, in Fig. 4, audio signal data structure is depicted which includes a preamble of 500 bits, an audio data area, and a postamble of 550 bits.

Applicant submits that it is unclear how the preamble and postamble of Oguro et al. relate to the limitation of claim 3, i.e., "wherein a predetermined preamble pattern is written between said first guard field and said data block, and a predetermined postamble pattern is written between said data block and said second guard field", in that Oguro et al. identifies the postamble as being inclusive of a guard area. Notwithstanding the above, Applicant submits that Oguro et al. does not supply that which is missing from Ide et al., Satoh et al. and Van Den Enden et al., i.e., "in at least an upper information layer of said at least two substantially parallel information layers, said first and second guard fields have lengths such that an end position of said second guard field of a preceding data block in a track is located within an area of said first guard field of a succeeding data block in said track".

(4) The Saito et al. patent discloses header information of information signal recording and reproducing method and apparatus therefor, in which dummy data is inserted in appropriate fields to ensure proper synchronization.

Claim 5 claims "wherein said first and said second guard fields contain dummy data for overwriting previously recorded data".

However, Applicant submits that Saito et al. does not supply that which is missing from Ide et al., Satoh et al. and Van Den Enden, i.e., "in at least an upper information layer of said at least two substantially parallel information layers, said first and second guard fields have lengths such that an end position of said second guard field of a preceding data block in a track is located within an area of said first guard field of a succeeding data block in said track".

(5) Applicant was not able to locate a citation for Ishihara in the file history of the subject application. However, a search of the USPTO patent database uncovered U.S. Patent 5,604,727 to Ishihara which discloses a data recording medium an optical disk and an optical disk apparatus, in which a GAP area at the beginning of a recording area, and a BUFFER area at the end of the recording area are variable in length. In particular, as noted in Ishihara at col. 1, lines 46-50:

"Since the recording area is randomly shifted backward by a maximum of 16 channel bits (which correspond to 1 byte in the 2-7 modulation), sector format allows a gap section GAP before the recording area and a buffer section subsequent to the recording area to have a 1-byte variable length."

This is more particularly described at col. 12, lines 54-65:

"A gap GAP does not include emboss data, and is randomly set within a length of 80 to 96 channel bits for each 1-channel bit length. With this arrangement, data recorded in the next synchronization code section VF03 and subsequent sections are randomly shifted within a length of 16 channel bits every 1-channel bit length.

"A recording area illustrated in FIG. 4 is made up of the following areas: the 5- or 6-byte gap GAP (non-recording area), a 16-byte synchronization code section VF03, a 3-byte data mark SYN, a 639-byte data area DATA, a 1-byte postamble PA2, and a 9- or 8-byte buffer BUFFER (non-recording area)."

From the above, it should be clear that Ishihara discloses that the GAP may vary between 5 and 6 bytes while the BUFFER may vary between 9 and 8 bytes. However, Applicant submits that there is no disclosure or suggestion that the GAP of a succeeding recording area in a track should overlay a portion of the BUFFER of a preceding recording area in the track.

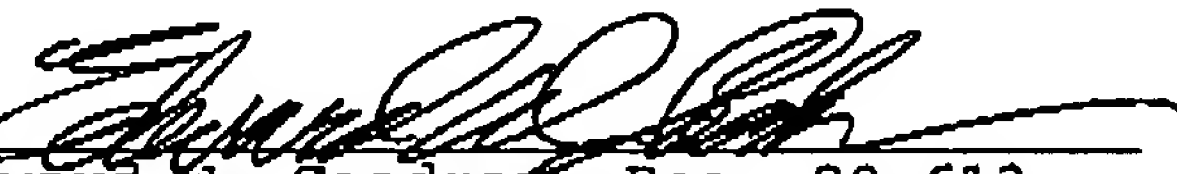
(6) The Miyauchi et al. patent discloses an optical recording medium having a dummy area at leading and/or trailing positions of recording area. However, Applicant submits that Miyauchi et al. does not supply that which is missing from Ide et al., Satoh et al. and Ishihara, i.e., "in at least an upper information layer of said

at least two substantially parallel information layers, said first and second guard fields have lengths such that an end position of said second guard field of a preceding data block in a track is located within an area of said first guard field of a succeeding data block in said track".

In view of the above, Applicant believes that the subject invention, as claimed, is not rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

Applicant believes that this application, containing claims 1-8, 11-19, claims 20-24 (withdrawn), 25 and 26, is in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

by   
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